

Patent Claims

1. Use of a two-component composition which comprises
 - A) a polyol component, which contains one or several polyols and one or several aromatic amines and has a hydroxyl group concentration of 0.5 to 10 mol hydroxyl groups per kg of polyol component, and
 - B) a polyisocyanate component, which contains one or several aromatic polyisocyanates,for the production of polyurethane gel coats for synthetic resin composite materials, wherein the synthetic resin comprises epoxy resin and/or vinyl ester resin and is not, or not completely, cured at the time when it is brought into contact with the gel coat.
2. Use according to claim 1, **characterized in that** at 23°C the gel coat displays an elongation at break (measured as per DIN EN ISO 527) of at least 3%, preferably greater than 4%, in particular greater than 5%.
3. Use according to claim 1 or 2, **characterized in that** the polyurethane gel coat is not completely cured at the time when it is brought into contact with the synthetic resin, wherein the bringing into contact with the synthetic resin is preferably an application of synthetic resin onto the gel coat.
4. Use according to one of the previous claims, **characterized in that** the synthetic resin used comprises one or several reinforcing materials.
5. Use according to claim 4, **characterized in that** the reinforcing material is glass fibre fabric, glass fibre nonwoven, carbon fibre fabric and/or carbon fibre bonded fabric, wherein the synthetic resin used is especially preferably a prepreg or injection resin, in particular an injection resin or epoxy resin prepreg with glass fibre fabric and/or glass fibre nonwoven.
6. Use according to one of the previous claims, **characterized in that** the polyol component comprises one or several polyether polyols.
7. Use according to one of the previous claims, **characterized in that** the polyol component contains:

- A1) one or several low molecular weight polyols with a molecular weight of 150 to 600 g/mol and a hydroxyl group concentration of 4 to 20 mol hydroxyl groups per kg of low molecular weight polyol and/or
- A2) one or several higher molecular weight polyols and
- A3) one or several aromatic amines.
8. Use according to one of the previous claims, **characterized in that** the aromatic amine, dissolved in toluene (20 wt. % amine in toluene), mixed at 23°C with an equimolar quantity of an oligomeric HDI isocyanate with an NCO content of about 5.2 mol/kg and a viscosity in the range from 2750 to 4250 mPas, dissolved in toluene (80 wt. % isocyanate in toluene) gives a gel time of more than 30 seconds, preferably more than 3 minutes, more preferably more than 5 minutes, in particular more than 20 minutes (determined as per E-DIN VDE 0291-2, 1997-06, section 9.2.1).
 9. Use according to one of the previous claims, **characterized in that** the aromatic amine is a methylenebisaniline, in particular a 4,4'-methylenebis(2,6-dialkyylaniline).
 10. Use according to claim 9, **characterized in that** the aromatic amine is 4,4'-methylenebis-(3-chloro-2,6-diethylaniline).
 11. Use according to one of the previous claims, **characterized in that** the content of aromatic amine in the polyol component, based on the total mass of the polyol and aromatic amine, lies in the range from 0.1 to 20 wt. %, preferably 0.3 to 10 wt. %, more preferably 0.5 to 5 wt. %, and in particular 1 to 3 wt. %.
 12. Use according to one of claims 7 to 11, **characterized in that** the content of low molecular weight polyol in the polyol component, based on the total mass of polyol and aromatic amine, lies in the range from 2 to 70 wt. %.
 13. Use according to claim 12, **characterized in that** the content of low molecular weight polyol in the polyol component, based on the total mass of polyol and aromatic amine, lies in the range from 5 to 60 wt. %, preferably 10 to 50 wt. %, more preferably 20 to 45 wt. %, and in particular 35 to 45 wt. %.

14. Use according to one claims 7 to 13, **characterized in that** the hydroxyl group concentration of the low molecular weight polyol lies in the range from 4.5 to 15, more preferably in the range from 5 to 12 and in particular in the range from 6 to 10 mol hydroxyl groups per kg of low molecular weight polyol.
15. Use according to one of claims 7 to 14, **characterized in that** the low molecular weight polyol is selected from straight-chain or branched polyester polyols, polyether polyols, such as polyether glycols, acrylate polyols and polyols based on dimeric fatty acids.
16. Use according to one of claims 7 to 15, **characterized in that** the higher molecular weight polyol is selected from polyester polyols and polyether polyols, acrylate polyols and polyols based on dimeric fatty acids.
17. Use according to one of claims 7 to 16, **characterized in that** the content of higher molecular weight polyol in the polyol component, based on the total mass of polyol and aromatic amine, lies in the range from 75 to 10 wt. %, preferably 65 to 10 wt. %, more preferably 50 to 12 wt. % and in particular 30 to 15 wt. %.
18. Use according to one of the previous claims, **characterized in that** the aromatic polyisocyanate is monomeric, oligomeric or polymeric polyisocyanate.
19. Process for the production of synthetic resin composite materials with polyurethane gel coats, which comprises
 - (i) the mixing of a two-component composition which comprises
 - A) a polyol component, which contains one or several polyols and one or several aromatic amines and has a hydroxyl group concentration of 0.5 to 10 mol hydroxyl groups per kg of polyol component, and
 - B) a polyisocyanate component which contains one or several aromatic polyisocyanates,
 - and at least partial curing of the mixture and
 - (ii) the bringing of the mixture into contact with synthetic resin, wherein the synthetic resin comprises epoxy resin and/or vinyl ester resin and is not, or not completely, cured at the time when it is brought into contact with the gel coat.

20. Synthetic resin composite material with polyurethane gel coat, producible by the process according to claim 19.

21. Composite material according to claim 20, **characterized in that** it is a wind vane or a part thereof.